

- The time and date (e.g. a certain event is only alarmed outside normal working hours).
- Whether the source and type of event is a group of alarm points that is currently armed or

5 With regard to alarm points, the group may correspond to a geographical grouping (specific area or building) or be part of a logical grouping (e.g. or the reed switches monitoring windows from the outside of a building). These group of alarm points maybe armed or disarmed manually (e.g. from a card reader operator workstation PC automatically) when the area that the alarm points monitors occupied or

10 unoccupied or automatically by time and day. An alarm point in the group of alarm points only creates an alarm when the group of alarm points as a whole is armed.

Thus it can be seen that if the present invention has a memory device which hold data coming in over certain time period, it is then possible that once an alarm or an

15 event is detected, data relating immediately before the event as well as during after can be held “stored”.

It should be appreciated that this is an important feature in a security system and can offer valuable information about the events surrounding a breach of security.

According to one aspect the present invention, the DVC has integrated intelligence

20 such that the camera itself can effect data processing. Data processing is thus performed on captured images at the camera thereby enabling the camera to rapidly analyse image data and perform functions which can include motion

detection, motion detection within a region of the camera's field of view, false detection recognition (i.e. curtains moving in a breeze) and tracking objects to record the path of movement through the field of view (useful for detecting access to an area in the camera's field of view in authorised and unauthorised directions.

5 In its simplest application the DVC can be used both as a surveillance camera and as a replacement for a standard passive infra-red motion detector. When performing motion detection the camera will be able to generate an event to be logged by the system host in the same manner as a contact alarm for a traditional passive infra-red detector. Under software control from an operator work-station

10 the DVC can provide images on screen with the operator being able to select any camera in the system.

By virtue of its "intelligence" the DVC can analyse images captured and be able to process the images for subsequent transmission to the host system or storage for later transmission of any images arising from motion detection, false detection or

15 tracking objects. To indicate an unusual or alarm situation the camera can immediately on-pass such information to the host system for analysis at the operator work-station. In this manner, the camera can distinguish between routine information and alarm/unusual situation information thereby resulting in the operator work-station only being provided with information on which immediate

20 analysis/action is required. This reduces information overload on the operator. An alarm function can be included to alert the operator to the alarm/unusual situation so as to ensure that the images transmitted from the digital camera are immediately analysed.

In some embodiments of the present invention, the camera may include the ability to indelibly stamp images with a digital "watermark" to authenticate images. Preferably, the watermarking is sufficiently tamper proof that it would be able to be used as court evidence. For example, the watermarking may be used in connection with an image linked to an event such that the watermark can identify which camera (in its system) captured the image, the date and time the image was captured and verify that the image had not been tampered with in any way since it was captured.

In one embodiment of the present invention, the watermarking is carried out in two stages. First, a digital signature of various data relating to the image is calculated. Secondly, part of this digital signature is used as a bit-pattern that is embedded in the quantised wavelet co-efficient output stream.

In preferred embodiments of the present invention, the data that is received by the camera is also compressed before transmission to the security system.

In typical image compression techniques, often only the change in data is transmitted. For example, there may be a scene in which something moves. Standard compression techniques would send one image having the full scene and in subsequent images of only the moving object as this is the only part of the image which has changed.

The applicant has recognised that this form of image compression is not suitable for security systems. In security systems, it is desirable to have stand alone frames which are independent of each other. This means that to tamper with the images,